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Vol. 5, No. 12. July, 1936.

Agriculture.

Can he solve the puzzle? By Elmer T. Peterson. Successful Farming. v. 34, no. 7. July, 1936. p. 10-12, 32. As Midwest farmers go about job of reorganizing their fields to comply with Government edicts, they wonder why Uncle Sam doesn't do a little careful planning too. Every taxpayer in United States, regardless of where he leves, is entitled to broader national form of relief brought about by national land-use policy, for three chief reasons. First, it would relieve him of part of his growing tax burden. Second, it would conserve national resources which are rapidly disappearing. Third, it would provide permanent solution of farm problem which certainly cannot be provided by mere planting of soil - conserving or soil-building crops, most commendable thing as far as it goes but necessarily temporary device since it does not guarantee there will be permanent with-drawal of cropland from production.

Contribution of 1936 to long-time agricultural policy. By H.R. Tolley. 1936. 22p. Mimeographed. Address at the American Institute of Cooperation, University of Illinois. June 19, 1936.

Air Conditioning.

Air cleaning equipment and its operation. By H.C. Murphy. Ice and Refrigeration. v. 91, no. 1. July, 1936. p. 67-72. Place of air filtration in removing dust, bacteria, etc., from city air. Study of atmospheric impurities. Steps in air cleaning. Essential requirements of air filter. Type determined by purpose.

Research in summer cooling. Ice and Refrigeration. v. 91, no. 1. July, 1936. p. 43-44. Summary of paper presented at conference on air conditioning at University of Illinois. Results of tests in summer air conditioning at research residence. Arrangements of cooling plant with ice and with mechanical refrigeration. Operating data for three types of central cooling plants.

Summer cooling - our help through research. By V.L. Sherman. American Builder. v. 58, no. 6. June, 1936. p. 70, 72, 74.

Alcohol Fuel.

Alcohol and alcohol-gasoline blends as fuels for automotive engines: V. Studies on the performance of an eight-cylinder engine using gasoline,

Alcohol Fuel. (Cont'd)

dehydrated alcohol, and dehydrated alcohol-gasoline mixtures. By A.L. Teodoro. 1936. 839-853p. Reprinted from the Philippine Agriculturist, v. 24.

Alcohol, gasoline values as fuel are discussed. Oil, Paint & Drug Reported. v.129,no.16.April 20, 1936. p. 23, 47. Mechanical, industrial, economic phases are argued at A.C.S. meeting.

Chemists debate value of alcohol blend for car fuel. Science News Letter. v. 29, no. 785. April 25, 1936. p. 266-267. Advocates of blended fuel believe problem linked with agricultural salvation; others fear competitor.

Italy to use surplus wine for motor fuel. Science News Letter. v. 29, no. 789. May 23, 1936. p. 335. From surplus would be made alcohol which might be blended with gasoline as motor fuel. Census of individual wine holdings is now being made. With only 3% of its gasoline needs coming from domestic sources, Italy has used last few years to develop intensively the manufacture of industrial alcohol for fuels. Early in 1936 a law was passed making 20 percent blend of alcohol in gasoline compulsory. Raw materials for distillers have been provided by increasing acreage of sugar beets and limitation has been placed on amount of sugar beet molasses used for sugar recovery in order to increase supply for alcohol producers.

Associations.

Sixty-sixth annual convention, American Society of Civil Engineers. Civil Engineering. v. 6, no. 7. July, 1936. p. 471-476. Program of sessions.

Barns.

Dreams come true with modernized barns. By E.T. Leavitt. Farm Machinery and Equipment. no. 1830, June 15, 1936. p. 10.

Modern farm barn. The Farmer. v. 54, no. 9. April 25, 1936. p. 6-7,

Modernizing the farm barn. By E.T. Leavitt. Farm Implement News. v. 57, no. 14. July 2, 1936. p. 29.

Building Construction.

Development of modern timber connectors. By Theodore C. Combs. Military Engineer. v. 28, no. 158. March-April, 1936. p. 91-93.

Douglas fir use book: Structural data and design tables. Seattle. Washington, West Coast Lumbermen's Association. 1935. 209 p.

Footings. Architectural Forum. v. 63, no. 6. December, 1935. p. 536-538.

Building Construction. (Cont'd)

Hollow wall is coming back. Brick and Clay Record. v. 88, no. 6. June, 1936. p. 236, 238. Publicity of air conditioning and insulation is reviving interest in cavity wall. New units help design of such wall construction.

Home clinic plan promises architectural services for the low-priced house. Architectural Forum. v. 64, no. 3. March, 1936. p. 206-207. Advantages: Home Clinic Plan insures lasting value in design, efficient plan, standard materials and good workmanship. 2. Eliminates excessive costs resulting from waste in using unsuitable materials, from shoddy workmanship and unmature plans. 3. Reduces future repair bills and gives longer life to house. 4. Insures house suitable to neighborhood. 5. Relieves borrowers of both details and disappointments incidental to home building. 6. Insures more readily marketable properties.

New things in concrete construction for farm application. By W.G. Kaiser. Agricultural Engineering. v. 17, no. 6. June, 1936. p. 237-239.

Central Valley Water Project.

Organizing districts under Central Valley project. By Frank Adams. California Cultivator. v. 83, no. 11. May 28, 1936. p. 389, 419.

Corrosion.

Corrosion of copper. Glenn H. Damon and Ray C. Cross. Industrial and Engineering Chemistry. v. 28, no. 2. February, 1936. p. 231-233. Reports study of controlling variables in unaerated immersion test for corrosion. Corrosion rate is directly proportional to oxygen solubility of acid up to about 28 normality; above 25 normality oxidizing character of sulfuric acid affects corrosion rate. Rate of oxygen diffusion through air-liquid interface controls corrosion rate except in those cases where solution surface area is very large in comparison to metal surface area. Standard corrosion test methods must specify solution surface area if reproducible results are to be obtained. Maximum corrosion rate for copper in unaerated 0.2 normal solutions of sulfuric acid is approximately 40 mg. per sq. dm. per 24 hours. These conclusions are based on experimental work performed with copper in sulfuric acid. Same factors should, however, control corrosion rate for all metals which depend upon oxygen depolarization.

Corrosion-protective value of electrodeposited zinc and cadmium coatings on steel. By William Blum and others. 1936. 212p. U.S. National Bureau of Standards. Research Paper R.P. 867

Dairy Farm Equipment.

Electric service around dairy farms. By R.U. Blasingame. Electricity on the Farm. v. 8, no. 9. September, 1935. p. 7-9. Presents fact which are quite convincing as to value of electricity on dairy farms.

Dairy Farm Equipment. (Cont'd)

Improved barn equipment needed by dairy farmers. By E.T. Leavitt. Implement and Tractor. v. 51, no. 12. June 13, 1936. p. 16.

Dams.

Construction operations at Fort Peck. By T.B. Larkin. Civil Engineering. v. 6, no. 7. July, 1936. p. 462-466. Natural obstacles fail to check progress of Federal works dam project.

Construction procedure with small earth dams. By W.A. Hardenbergh. Public Works. v. 67, no. 3. March, 1936. p. 25-26.

Dam buttresses strengthened. By W.W. Lane. Engineering News-Record. v. 116, no. 25. June 18, 1936. p. 867-870. Remedial treatment of hollow buttresses of Lake Pleasant multiple arch dam in Arizona includes concrete floors containing layers of pre-stressed T-rails to make dam safe for full reservoir load.

Design of dams. By Frank W. Hanna and Robert C. Kennedy. 1st edition. New York. McGraw-Hill Book Company, Inc., 1931. 456 p.

Earthquake-proof earth dams. By F.H. Tibbetts. Engineering News-Record. v. 117, no. 1. July 2, 1936. p.10-13. Five storage dams on water-deposited soils over the shattered and shaken bed rock between the historic San Andreas and Hayward faults in California have earthquake resisting sections

Function and design of check dam. By Paul Baumann. Civil Engineering. v. 6, no. 6. June, 1936. p. 355-358. Discussing form of structures and their importance in soil erosion control.

Materials for the construction of earth dams. By W.A. Hardenbergh. Public Works. v. 67, no. 2. February, 1936. p. 17-18. Purposes of these studies have been (1) to enable construction of earth bases strong enough to carry traffic loads with only a thin wearing surface of bitumen, and (2) to develop earth wearing surface which would be so dense and impervious that it would carry light traffic without rutting or becoming dusty or muddy. Third in series referring especially to design and construction of small earth dams.

Overtopping causes failure of Elk City dam. Engineering News-Record. v. 116, no. 24. June 11, 1936. p.850-851. Rainfall of 4.7 inches in two hours results in a flood that went over the top of an earth-fill water-supply dam whose spillway crest had been raised $2\frac{1}{2}$ feet recently to increase reservoir capacity.

Problems at Conchas dam. By Gerard H. Matthes. Civil Engineering. v. 6, no. 7. July, 1936. p. 437-441. Advance studies on materials, design, water supply, and operation. Particular pains were taken with foundation, using borings up to 30 inches in diameter, and employing photographic methods for investigation as well as for

Dams. (Cont'd)

recording purposes. Red clay shale which when dry disintegrates to fragments, and finally to dust, presents a peculiar problem since its moist character must be sedulously maintained. Operation also presents its difficulties, as rainy or impounding season corresponds with irrigation season. Adequate supply of water must be kept available for agricultural uses at same time that ample reserve capacity is being maintained for flood control; and operator must balance these conflicting demands.

Stress function and photo-elasticity applied to dams: Discussion. By John H.A. Brahtz. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 733-739.

Doors.

Garage doors. Pencil Points. v. 17, no. 3. March, 1936, p. 145-152.

Drainage.

Wooden drain pipes. Monthly Bulletin of Agricultural Science and Practice. v. 27, no. 5. May, 1936. p. 197. According to J. Jacobsen wooden drain pipes are made in Denmark by means of a drill. Example of these pipes was shown to Nordic Congress of Agricultural Research at Copenhagen in 1935. These pipes are furnished with overlapping joints at ends, which allow them to be completely joined when put into ground. In this way water cannot escape through joints as with ordinary drain pipes. In order to remedy this defect, there are two longitudinal slits cut in each pipe with a circular saw, 1.5 to 2 mm. wide and about 1 metre long. Most suitable length for pipe is about 100 cm., plus reinforcement of about 2.5 cm., bringing total length of pipe up to about 102.5 cm.

Electric Services, Rural

Extensive rural plans announced. Electrical World. v. 106, no. 25. June 20, 1936. p. 51. Utilities in Indiana, Wisconsin, Texas and Florida to extend service. R.E.A. activities. Miami-Shelby project completed.

Noteworthy developments in farm lines. By A.E. Silver. Electrical World. v. 106, no. 23. June 6, 1936. p. 70-72. Simplified construction bids fair to meet economic and performance requirements for rural radials.

Why costs of rural lines must be widely variable. Electrical World. v. 106, no. 9. February 29, 1936. p. 74. Excerpts quoted from letters accompanying submissions of data.

Electric Wiring.

New developments in farm wiring. By A.E. Brand. Electrical World. v. 106, no. 23. June 6, 1936. p. 89-90. Rural prospects, last major frontier, can be served with safe, economical, approved wiring for house, yard and buildings.

Electricity in the Home.

Electricity in the home and on the farm. By Forrest B. Wright. New York, John Wiley & Sons, Inc., 1935. 320 p.

Electricity on the Farm.

Can we afford electricity? By H.J. Gallagher. Electricity on the Farm. v. 9, no. 3. March, 1936. p. 7-10.

Drying fruits and vegetables. By Hobart Beresford. Electricity on the Farm. v. 8, no. 9. September, 1935. p. 10-11. Fruit and vegetable drier, suited to needs of farm family and to operation by electric heat, is patterned after one developed by National Rural Electric Project. Original plans have been modified to increase capacity and simplicity construction of unit.

Farm service demands energetic cultivation. Electrical World. v. 106, no. 25. June 20, 1936. p. 54. That "any old salesman" cannot sell electric service to farmers, and that rural electrification progress requires co-operation between utilities and all other agencies working for betterment of country life featured address last week at spring conference of northeastern farm bureau officials in Amherst, Mass., by Prof. W. T. Ackerman. "Rural America is going to have electric service - somehow," Yardsticks applied to farm service should not be too rigid, as closer study of economic requirements indicated that problem is less difficult than at first appeared. Low "objective" rates, liberal outlook on extensions with reasonable consideration of costs, load building through employment, and support of rural service engineers, and team-play with other organizations offer all concerned avenues toward more profitable use of electricity in rural areas.

Farmer increasingly set on electricity. By E.A. White. Electrical World. v. 106, no. 23. June 6, 1936. p. 73. Financial limitations call for long-range support program, not minimum debt commitment. Believes developments will be along following lines: 1. There will be gradual increase in farm income. 2. Process of abandoning or combining into larger units the marginal farms will continue. 3. Regaining of our export markets will be slow process. Solvent farmer will be cautious about going into debt for other than productive purposes. 5. Cityward movement will not be phenomenal. Instead much more attention than has been the case in past will be paid to modernizing the farm home. Surplus resources, when available, will be employed to build up farm. 6. Profit will come from operations rather than increment in price of land. 7. Continued efforts will be made to enlarge market for agricultural products in other outlets than food for human consumption. 8. Mechanization of farm operations, especially on farms of higher income brackets, will continue at rapid rate. Here electricity will play ever-enlarging part.

Hired men at 60¢ a day. By Morris H. Lloyd. Electricity on the Farm. v. 8, no. 12. December, 1935. p. 5-8.

Electricity on the Farm. (Cont'd)

Many jobs for electricity. Idaho Farmer. v. 54, no. 6. March 19, 1936. p. 5. Lists some of more common farm and home jobs that electricity can do, with average consumption in kilowatt hours for each. Amount may vary with condition of equipment and amount of use, but variation will be slight, and,knowing your electrical rate, you can find average cost of operating each device by multiplying rate and consumption given below.

Relations in rural electrification. By W.W. Freeman. Electrical World. v. 106, no. 23. June 6, 1936. p. 56-57. What R.E.A. has done and now plans. The attitude of Utilities and reasons for it. All encourage growth of farm use.

Rural program's chances for success. Electrical World. v. 106, no.23. June 6, 1936. p. 36-37. In its program of rural electrification the Federal government has blithely embarked on experiment for which failure is indicated by all past experience in field. It will be difficult even with fairest promises to lure farmer deeper into debt to pay for electricity. It has been proved possible by progress already made to effect definite reductions in costs of farm-line construction. New developments in building, wiring methods and materials will reduce such costs if these methods and materials are applied.

Engines.

Cylinder wear in Diesel engines. By G.D. Boerlage and B.J.J. Gravesteyn. S.A.E. Journal. v. 38, no. 5. May, 1936. p. 197-199.

Cylinder wear in gasoline engines. By C.G. Williams. S.A.E. Journal. v. 38, no. 5. May, 1936. p. 191-196. Paper draws attention to importance of corrosion under cold-running conditions.

Erosion Control.

Farming speeds erosion. By C.O. Rost. Northwest Farm Equipment Journal. v. 50, no. 6. June, 1936. p. 16. Total area affected by erosion amounts to 325 million acres, and if located in single region, would equal combined areas of Minnesota, Wisconsin, Illinois, Iowa, and South Dakota. This is about 17 per cent of continental United States, and represents roughly 30 per cent of nation's agricultural land.

Farms that blow away. By Vernon Hagelin. Prairie Farmer. v.108, no. 9. April 25, 1936. p. 4, 30. G Vegetation reclaims drifting sand.

Parable of the Cookson hills. By L.E. Childers. Farmer-Stockman. v. 49, no. 9. May 1, 1936. p. 3, 10.

Tree planting for erosion control. By R.H. Westveld. 1936. 7 p. Missouri. College of Agriculture. Agricultural Extension Service Circular no. 345.

Explosives.

Powerful explosive made from cornstarch by-product. Science News Letter. v. 29, no. 786. May 2, 1936. p. 281. Inositol from farm wastes in basic material for blasting agent more powerful than nitroglycerine. Basic material of new explosive is sugar-like substance, inositol, made from waste "steep" waters in which corn is soaked as step in manufacture of cornstarch. Inositol, can be converted into explosive known as hexanitroinositol, containing six nitrogen atoms. Explosive hexanitroinositol has advantages over nitroglycerine because it is a solid compound instead of liquid, and can thus be used directly as blasting agent, like dynamite. Its explosive properties are essentially same as those of nitroglycerine

Farm Buildings and Equipment.

Farmsteads. By H.B. White and others. 1936. 8p. University of Minnesota. Agricultural extension division. Special bulletin no. 175.

Home-made hog equipment. By J.W. Schwab and G.O. Hill. 1936. 8p. Purdue University. Extension Service. Extension bulletin no. 199.

How we store ice. By W.E. Wiecking. Hoard's Dairyman. v. 81, no. 1. January 10, 1936. p. 11. When ice is to be packed it is important that it be packed in as solid a mass of ice as possible inside ice house so there can be no circulation of air through mass of ice after it is packed. About a foot of insulation (usually sawdust) is placed at bottom of ice house with sides slightly higher than center so that weight of ice will tend to hold it toward center of pile. About a foot must be left between ice stack and sides of ice house, which is filled with sawdust) is placed at bottom of ice house with sides slightly higher than center so that weight of ice will tend to hold it toward center of pile. About a foot must be left between ice stack and sides of ice house, which is filled with sawdust as ice stack grows in height. Ice is piled in layers and all small holes between cakes in layer must be filled with small pieces of ice before next layer is started. Ice stack is carried up almost even with eaves. There should be at least a foot of sawdust over entire stack when finished. More insulation piled on top of ice the better it will keep.

Farm Chemurgic Council.

Chemistry wrecks the farm. By Wayne W. Parrish and Harold F. Clark. Sugar News & Industrial Review. v. 16, no. 12. December, 1935. p. 615-616, 618. Development of synthetics will not necessarily mean complete replacement of natural products, but it will mean sharp adjustments, often affecting millions of acres of land and the livelihood of hundreds of thousands of persons. It seems clear from evidence that, far from being in temporary crisis which can be adjusted by slight reductions in acreages and manipulation of prices

Farm Chemurgic Council. (Cont'd)

such as Agricultural Adjustment Act has attempted, agriculture has entered a physical revolution of significant proportions. As intensive agriculture advances and as synthetic industry moves more and more products from soil to factory, hundreds of millions of acres will have to go out of cultivation. Problem of redistributing population will increasingly be paramount task of central government. Threat of scarcity has been overcome, but problem of social control has hardly begun

Chemurgic farming. Arizona Producer. v. 15, no. 6. June 1, 1936. p. 1, 10. Agriculture's salvation may lie in industrial uses of its products.

Farm chemurgic council points the way. By John E. Pickett. Pacific Rural Press. v. 131, no. 14. April 4, 1936. p. 439.

First year's activities of the Farm Chemurgic Council. By Carl B. Fritsche. Utah Farmer. v. 56, no. 22. June 25, 1936. p. 3, 6, 8, 14. Survey of new chemurgic enterprises launched within last year since First Dearborn Conference justifies estimate that no less than fifty million dollars are being invested in new industries which will use factory crops raised on American farms for raw materials. These new industries include American paper mills, power alcohol for motor fuel, vegetable fiber plants, expansion of plastic industry, new uses for cotton, tung oil development, soybean plastic and oil extraction plants, starch from southern sweet potatoes, and other miscellaneous new products.

Farm Layouts.

Farmstead improvements. By H.B. White. Hoard's Dairyman. v. 81, no. 6. March, 1936. p. 152. Many influences are common to all farmsteads, and the following points should be considered: 1. Ease of access to fields and pastures, and yet near enough to public road not to be isolated. 2. Good drainage around buildings. 3. Suitable size. 4. Convenient arrangement of buildings so that work of feeding stock, etc., can be done without extra travel. 5. Proper distance of other buildings from house, so that odors, flies, and noises will not be objectional, and danger from fire will not be serious. 6. Proper distance of buildings from road to avoid dust, and danger from passing automobiles. 7. Proper location of trees, shrubs and garden. 8. Convenient dirveways. 9. Attractiveness of view from house. 10. Attractive appearance from public road has much to do with value of a farmstead, and satisfaction derived from it.

Planning and planting the Indiana farmstead. By R.B. Hull. 1936. 31 p. Purdue University. Extension Service. Extension bulletin no. 178.

Farm Machinery and Equipment.

Brookmire estimates 1936 volume over 425 million. Farm Implement News. v.57, no. 14. July 2, 1936. p. 14. Sales of farm equip-

Farm Machinery & Equipment. (Cont'd)

ment for 1936 are estimated to exceed $425,000,000, a gain of $100,000,000 over preceding year, or 30%. Opinion is given that large gain in garm equipment sales does not necessarily require gain in farm income from current levels, but that as a matter of fact farm income is increasing. Farm tractors, it is stated, accounted for 45% of volume in 1935, and will likely grow in relative importance.

Combine reduces soybean losses. Farm Machinery and Equipment. no. 1829. May 15, 1936. p. 11. Because it harvests and threshes beans in one operation, losses due to shattering are greatly reduced. In fact when properly equipped for soybeans, tests have proved that it will save an average of 20 per cent more beans than when crop is cut, raked, and threshed in separate operations.

Congress orders investigation of implement business. Farm Implement News. v. 57, no. 14. July 2, 1936. p. 31. Adopts Wheeler resolution directing Federal Trade Commission to ascertain facts and report on fourteen points.

Easy haying. By Walter C. Wilkins. Capper's Farmer. v. 47, no. 3. March, 1936. p. 12, 47.

Farm equipment business recovers rapidly. By E.V. Needham. Domestic Commerce. v. 17, no. 18. June 30, 1936. p. 400-401. Table gives comparative figures on production and sales of principal classes of farm equipment and related products for years 1930, 1931, and 1935.

Farm machines continue to improve. Farmer-Stockman. v. 49, no. 10. May 15, 1936. p. 28. Mr. McCrory sees particularly smaller machines for those who want them, less expensive, easier to handle, and with replacements simplified, standardized and cheaper. Believes that application of rubber tires to certain farm machines such as combines, tractors and perhaps others will increase life of machine, together with better bearings and methods of oiling, and better protection against dust and dirt. Other features of modern farm machinery which will improve in future are spring releases to protect machines from breakage; increased capacity because of higher speeds; better protection from dangerous working parts; easier operation because of power lifts, balancing springs and convenient levers.

Fast, clean mowing. Nebraska Farmer. v. 78, no. 14. July 4, 1936. p. 7. Your mower will not do good work if (1) cutter bar is not in proper alignment; (2) knife (sickle) is not sharp and centered; (3) guard (ledger) plates are dull or guards are out of alignment, or (4) knife holders are loose so knife does not slide correctly and freely on guard plates. In draft test with 5-foot mower, U.S. Department of Agriculture found that it took 30 to 50 per cent more power to cut with knife dull and guard plates in poor adjustment than it did when adjustment was correct.

First comes the plow. Country Home. v. 60, no. 3. March, 1936. p. 28.

Farm Machinery & Equipment.(Cont'd)

Good year for potato diggers. Implement and Tractor. v. 51, no. 13. June 27, 1936. p. 9, 23. Reduction in Southern yield enables other areas to obtain most favorable prices in many years, making a highly profitable crop.

How to improve tractor mowers. Implement and Machinery Review. v.62, no. 734. June 1, 1936.

Implements on terraced fields. Farm Implement News. v. 57, no. 14. July 2, 1936. p. 33.

Lower haying costs. By A.K. Livingstone. Capper's Farmer. v. 47, no. 6. June, 1936. p. 8.

Making hay. Nebraska Farmer. v. 78, no. 12. June 6, 1936. p. 6. Story in pictures.

Making hay in Minnesota. By Forest Henry. Hoard's Dairyman. v. 81, no. 10. May 25, 1936. p. 268.

Mechanized rice industry. By D.M. Rutherford. Pacific Rural Press. v. 131, no. 14. April 4, 1936. p. 438, 442-443.

More flexibile machines needed for terracing, says Shedd. Implement and Tractor. v. 51, no. 13. June 27, 1936. p. 8, 19. Bases his recommendation on observations of operation of planting and cultivating machinery over terraces in field and soil erosion experiment farms.

More power in hay field. By E.T. Leavitt. Farm Implement News. v. 57, no. 10. May 7, 1936. p. 30-31. An acre of good alfalfa should produce enough hay for a cow during entire feeding season, if properly handled at time of curing, but Department of Agriculture finds that fully one-tenth of harvested crop is lost from time it is cut until fed as result of spontaneous heating from excessive moisture. It is impossible to estimate loss through improper handling as extra leafy alfalfa may contain one-third more protein than wheat bran, while poor quality hay may have fully a third less.

Mowing machine efficiency. By F.L. Touton. Southern Agriculturist. v. 66, no. 5. May, 1936. p. 7-8.

New harrows hasten 1936 spring planting. Wisconsin Agriculturist and Farmer. v. 63, no. 10. May 9, 1936. p. 10. Many improvements have been made on the disk harrow so that it has been rated by agricultural engineers as having nearly twice the quality value of machines produced only a few years ago. Along with better materials and improved design, lubrication has been made more effective, greatly adding to its wearing qualities and decreasing draft.

New machines for beet growing. By John E. Pickett. Pacific Rural Press. v. 131, no. 12. March 21, 1936. p. 374.

Farm Machinery & Equipment. (Cont'd)

New ways with hay. By E.T. Leavitt. Hoard's Dairyman. v. 81, no. 10. May 25, 1936. p. 277.

1935 farm equipment census. Farm Machinery and Equipment. no. 1829. May 15, 1936. p. 6. Production 55% above 1931 when last census was taken. Still 46% below record year of 1929. Comparison with other years.

Performance studied of small combines. By W.M. Hurst and W.R. Humphries. Agricultural Engineering. v. 17, no. 6. June, 1936. p.249-250. Conclusions. 1. No evidence is available indicating relation between width of cut of combine and threshing losses, or quality of threshed grain. 2. Adjustments and condition of crop influence threshing losses and quality of grain to greater extent than size or type of combine. 3. Quantity of threshed grain thrown over the straw is usually higher than unthreshed grain with both small and large machines. 4. Two-plow tractor in good mechanical condition seems to have no difficulty in operating power take-off combine with cutter-bar width of about 5 feet, at ground speeds of 5 miles per hour, maximum speed of machines on which observations have been made. 5. Small combines on which observations were made can be operated successfully at speed of 5 miles per hour when crop and field conditions are favorable, but may throw over excessive quantity of threshed grain with straw at such speeds when badly lodged and weedy fields are encountered. 6. Due to small size, light weight, and use of pneumatic tires small machines can be moved from field to field or to distant points expeditiously.

Power in the harvest. By S.J. Wright. Implement and Machinery Review. v. 62, no. 734. June 1, 1936. p. 169.

Show basin-lister at round-up. By Tudor Charles. Kansas Farmer. v. 74, no. 9. April 25, 1936. p. 8. Makes dams every 10 feet in furrows to hold water.

Studies on the relation between cultivation implements, soil structure and the crop. By Claude Culpin. Journal of Agricultural Science. v. 26, part 1. January, 1936. p. 22-35. Some preliminary observations on the measurement of soil structure, with a description of an instrument for the measurement of soil resistance.

Studies on relation between cultivation implements, soil structure and the crop. By Claude Culpin. Journal of Agricultural Science. v. 26, part 1. January, 1936. p. 45-58. 2. The effects of the Fowler gyrotiller on the soil.

Treating seed corn. Hoard's Dairyman. v. 81, no. 10. May 25, 1936. p. 275. Gives description of Knobel's duster.

Why and how to treat seed of small grains and corn. By R.C. Rose and M.B. Moore. 1936. 4p. University of Minnesota. Agricultural extension division. Circular no. 53.

Feed Grinders and Grinding.

Chopping speeds hay crop. By Frank L. Hamlin. New England Homestead. v. 109, no. 11. May 23, 1936. p. 6. Greater volume in given space, and less labor are other advantages.

Cut feeding costs by grinding with electricity. By H. J. Gallagher. Electricity on the Farm. v. 8, no. 10. October, 1935. p. 5-7, 17.

Shall we grind stock feed? Pacific Rural Press. v. 131, no. 19. May 9, 1936. p. 624-625.

Shelling corn the modern way. By E.W. Lehmann. Electricity on the Farm. v. 8, no. 7. July, 1935. p. 11-12, 16. Diagrammatic outline of shelling, grinding and elevating equipment.

Fertilizer Spreaders.

Farmyard manure distributors. Journal of Ministry of Agriculture. v. 43, no. 1. April, 1936. p. 2-4. Machine that can be loaded up, driven away by man who has loaded it, and then spread its load and return for another is much more useful, and fills more definite place on American farms than on English farm where manure carting is often job for organized labor gang, and where at least two machines would be required in order to keep men steadily employed.

Floods and Flood Control.

Damage to flood lands. By Ralph W. Donaldson. New England Homestead. v. 109, no. 11. May 23, 1936. p. 2. Some 1,000 to 1,500 acres in Massachusetts river valleys may be temporarily removed from cropping.

Flood and erosion control problems and their solution: Discussion. By Donald M. Baker and E. Courtlandt Eaton. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 740-746.

Flood flow comparisons. Engineering News-Record. v. 116, no. 24. June 11, 1936. p. 836. Table gives peakstages and discharges of the March, 1936 floods.

Flood-stage records of the river Nile: Discussion. By Kalem Osman Ghaleb and C.S. Jarvis. Proceedings American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 702-710.

Flood warning system at Madden dam. By R.Z. Kirkpatrick. Military Engineer. v. 28, no. 158. March-April, 1936. p. 88-90.

Have Mississippi floods been conquered? By Grover T. Owens. Civil Engineering. v. 6, no. 7. July, 1936. p. 431-433.

Local flood control. By Edwin S. Cullings. Engineering News-Record. v. 116, no. 26. June 25, 1936. p. 915-917. New York river regulating district act points to the way in which flood control and river regulation can be directed by local bodies, with the cost of the work apportioned among the beneficiaries.

Floods and Flood Control. (Cont'd)

Long-range flood predictions. By C.R. Pettis. Engineering News-Record. v. 116, no. 25. June 18, 1936. p. 870-871. Study of all available flood records indicates that the use of duration curves for long-range predictions may result in error due to a change in the slope of the floodprobability line near the 100-yr. point.

Muskingum river flood control. By Francis X. Purcell, Jr. Military Engineer. v. 28, no. 159. May-June, 1936. p. 184-188

New York state flood of July, 1935. By Hollister Johnson. Washington, D.C. 1936. 233-268 p. U.S. Geological Survey. Water-supply paper. no. 773-E.

Taming the Missouri river. By Orville E.Walsh. Civil Engineering. v. 6, no. 7. July, 1936. p. 421-424. Army engineers are rapidly bringing the "Big Muddy" under control with dikes and revetment.

Vermont flood control projects. Public Works. v. 67, no. 2. February, 1936. p. 12.

Florida Ship Canal.

Atlantic-Gulf ship canal. By Brehon Somervell. Military Engineer. v. 28, no. 159. May-June, 1936. p. 170-174.

Silver Springs and the Florida ship canal. Science. v. 83, no. 2161. May 29, 1936. p. 520-522.

Flor of Air.

Flow of air in ducts. By Emory Kemler. Heating and Ventilating. v. 33, no. 5. May, 1936. p. 38-41.

Flow of Water.

Back-water and dro-down curves for uniform channels. By Nagaho Mononobe. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 643-682.

Transport of water through heavy clay soils. By E.C. Childs. Journal of Agricultural Science. v. 26, part 1. January, 1936. p. 114-127. Pt.I.

Transport of water through heavy clay soils. II. By H.H. Nicholson and E.C. Childs. Journal of Agricultural Science. v. 26, part 1. January, 1936. p. 128-141. Pt. II.

Traveling waves in steep channels. By W.H. Holmes. Civil Engineering. v. 6, no. 7. July, 1936. p. 467-468.

Varied flow in open channels of adverse slope: Discussion. By H.E. von Bergen, W.E. Howland and Arno T. Lenz. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 824-829.

Flumes.

Adaptation of Venturi flumes to flow measurements in conduits: Discussion. By Harold K. Palmer and Fred D. Bowlus. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 728-732.

Forage Drying.

Grass drying demonstrated. Implement Review. v. 62, no. 734. June 1, 1936. p. 175-176.

Frost Protection.

Man-made wind saves fruit damage by frost. Popular Mechanics. v. 65, no. 4. April, 1936. p. 550-551. Sixteen-foot propeller blades, whirling at 950 revolutions per minute, draw down warm air, and keep it circulating in grove. Propeller and its motor are mounted on rotating base atop a forty-six foot steel tower.

Fuels.

Cetane rating of Diesel fuels. By P. H. Schweitzer and T.B. Hetzel. S.A.E. Journal. v. 38, no. 5. May, 1936. p. 206-216.

Diesel fuels - significance of ignition characteristics. By J. R. MacGregor. S.A.E. Journal. v. 38, no. 6. June, 1936. p. 217-223. Data are presented showing results of extensive tests of Diesel fuels of widely different ignition characteristics in laboratory and service engines. Tests in laboratory engines are particularly significant in demonstrating influence of controlled differences in operating conditions upon relative ease of ignition of fuels. Tests in service engines show that each engine has distinct minimum requirements for fuel ignition quality; that minimum required is different under different operating conditions; and that no essential difference in performance of fuels can be noted as long as minimum ignition quality is exceeded. For all practical purposes, therefore, no correlation appears possible between laboratory rating of Diesel fuel ignition characteristics and service behavior. Conclusion is advanced that, since fuels equal or superior to minimum for any engine are required to secure freedom from difficulties attending incomplete combustion, and since no essential differences can be noted between fuels exceeding minimum quality, development of laboratory tests for evaluating ignition characteristics of fuels is of primary utility at present time in aiding manufacturer to secure experimental fuels of known ignition quality to further development of engine design.

Rating aviation fuels in full-scale aircraft engines. By C.B. Veal, S.A.E. Journal. v. 38, no. 5. May, 1936. p. 161-175. Covers results obtained in carrying out program involving tests made to ascertain whether octane-number determinations made by C.F.R. Motor method (A.S.T.M. designation D357-34T) of rating motor fuels correlate satisfactorily with behavior of widely different types of aviation fuel in representative full-scale aircraft engines. Report of the Cooperative Fuel Research Committee.

Fuels. (Cont'd)

Thermal and physical properties of fuel briquettes made from agricultural and other waste products. By Jefferson B. Rodgers. Agricultural Engineering. v. 17, no. 5. May, 1936. p. 199-204. Purposes of this study were (a) to make study of "Pres-to-logs" machine in order to determine whether machine in its present form or with modifications, could be used for making fuel briquettes from agricultural waste products; and (b) if machine were successful in producing briquettes from such materials, to determine thermal, physical, and burning characteristics of these briquettes. Divisions of study were as follows: (1) Producing fuel briquettes; (2) preparing samples from briquettes and their use for heat value determination; (3) conducting boiler tests using different fuels; and (4) determining percentage of moisture and quality of bond.

Tractor fuel situation in Kansas. By E.L. Barger. Agricultural Engineering. v. 17, no. 6. June, 1936. p. 241-243. Purposes of survey were to obtain information on fuels being used and relative importance of each, and to obtain record of tractor owner's experiences in dealing with fuel problem. In view of general scarcity of information on this phase of tractor fuel problem, it is believed that agricultural engineers will be interested in results obtained. Since data presented are based chiefly on estimates and opinions of individuals without technical background, they should not be used to draw conclusions except of broad or general nature.

Hitches.

Hitches for field machinery. By D.E. Wiant and L.W. Minium. 1935. 55p. South Dakota. Agricultural Experiment Station. Bulletin 297.

Hotbeds.

Making plants grow faster. By G.A. Rietz. Electricity on the Farm. v. 8, no. 11. November, 1935. p. 4-6.

Simple support for cold frame cables. By George W. Kable. Electricity on the Farm. v. 9, no. 1. January, 1936. p. 8. Ordinary 1/2-inch mesh hardware cloth is cut in strips about four inches wide. These strips are bent over a little one side of center by doubling them over edge of cold-frame. One side is then tacked against frame or center support with double pointed tacks or small staples, leaving an open trough to support cable. Three small staples are all that is necessary to hold trough against side. This open screen trough has advantage of giving continuous support to cable, and permitting free air circulation around it. It is inexpensive, keeps cable up out of way, and can be easily removed in few moments if desired.

Uncle Sam uses electric hotbeds. By J.C. Scott. Electricity on the Farm. v. 9, no. 1. January, 1936. p. 7.

Houses.

Last word in pre-fabricated houses! By L.J. Mulhearn. American Builder. v. 58, no. 6. June, 1936. p. 68-69, 108, 112. Featherweight - solar ray heat - overnight construction - delivered by air mail.

Houses. (Cont'd)

Modernizing the farm home. Farm Machinery and Equipment. no. 1829. May 15, 1936. p. 25.

Permanent home on the plains. By C.W. Mullen. Farmer-Stockman. v. 49, no. 9. May 1, 1936. p. 5.

Income, Farm

May farm income best since 1930. Farm Implement News. v. 57, no. 14. July 2, 1936. p. 15. Farm income for May, largest since 1930, was $521,000,000 from sales of products and $51,000,000 from government benefit payments. It brought total for first five months of year up to $2,638,000,000, compared with $2,488,000,000 in same months in 1935.

Irrigation.

Deep irrigation proves profitable. By Frank G. Boyschlag. California Cultivator. v. 83, no. 8. April 11, 1936. p. 269, 311.

Fighting drouth with irrigation. By I. P. Blauser. Electricity on the Farm. v. 8, no. 8. August, 1935. p. 4-6, 16.

Good crops in drought years. By Richard Boonstra. Electricity on the Farm. v. 9, no. 3. March, 1936. p. 16, 18. It seems to me that use of electric motors and pumps for irrigation may, in distant future, be largely reduced as result of our dam building habit. When that time arrives we will have a man in a little tower overlooking those dams and by means of radio system give farmers irrigation water when it is needed. In the meantime, we shall find modern electrically driven pump mighty paying proposition through insuring good crops no matter how little rainfall there may be.

Irrigated crop rotations in Western Nebraska, 1912-34. By Stephen H. Hastings. 1936. 36p. U.S. Department of Agriculture. Technical bulletin no. 512.

Irrigation in Montana. By Paul T. DeVere. Montana Farmer. v. 23, no. 20. June 15, 1936. p. 7, 27. Sun river project makes rapid progress.

Making irrigation pay. By C.J. Hurd. Electricity on the Farm. v. 8, no. 6. June, 1935. p. 6-7.

Observation in citrus irrigation. By D. J. Whitney. California Cultivator. v. 83, no. 11. May 28, 1936. p. 392.

Orchard irrigation is profitable. By J.C. Scott. Electricity on the Farm. v. 9, no. 5. May, 1936. p. 7-9, 29.

Sprinkling system for orchards. By J.E. Christianson. California Cultivator. v. 83, no. 11. May 28, 1936. p. 389, 415.

Upland irrigation. By A.B. Gordon. Capper's Farmer. v. 47, no. 6. June, 1936. p. 12. Water pumped by windmill is explanation.

Lighting.

Let there be light. Southern Planter. v. 97, no. 5. May, 1936. p. 5, 11.

"Lift" on lighting. By George W. Kable. Electricity on the Farm. v. 8, no. 12. December, 1935. p. 9-11, 16.

Lighting of this American home. By E.W. Commery. Magazine of Light. v. 5, no. 6. June, 1936. p. 18-24.

Lubrication.

Lubricant clings to metal and reduces wear. Popular Mechanics. v.65, no. 4. April, 1936. p. 484. Process is said to introduce electronic action, meaning that lubricant so treated contains a number of infinitely small electronic particles, each carrying electrical charge having affinity for metallic surfaces and therefore is attracted and firmly bound to surface to which lubricant is applied. Use of processed lubricants, developers claim, will result in greatly increased life and efficiency in machine, and corresponding reduction in cost of operation and maintenance. It is considered probable that new lubricants will make possible more economic design of all forms of machinery requiring lubrication because size of bearings and journals in many instances may be reduced appreciably. The process does not change conventional properties of lubricants, save to improve high and low temperature characteristics.

Miscellaneous.

Fifty-sixth annual report of the New Jersey state agricultural experiment station and the forty-eighth annual report of the New Jersey agricultural college experiment station for the year ending June 30, 1935. 1936. 122p. Agricultural engineering p. 12-14.

Human problems created by labor-saving machinery. By Elizabeth Faulkner Baker. Mechanical Engineer. v. 58, no. 5. May, 1936. p. 305-306.

Investment for public welfare. By Karl T. Compton. Science. v. 83, no. 2161. May 29, 1936. p. 507-511.

Significance of machinery industries to American economic structure revealed in new bureau bulletin. By Charles O. Thompson. Domestic Commerce. v. 18, no. 1. July 10, 1936. p. 2-3. Discounting for moment implications which new machinery and processes introduce with respect to any economic order, it may be categorically stated that few people realize extent of contribution of various machinery industries to wealth and work of American people. Numbering among largest of manufacturing industries, machine industries even in 1933, a year of severe depression, employed approximately 500,000 wage earners, paid more than $500,000,000 in wages, and produced commodities valued at more than $2,000,000,000. This in spite of fact that employment in these industries was only about half what it had been in 1929, and wage payrolls and value of products, owing to declining wage and commodity-price levels, only about 30 percent of 1929 level.

Miscellaneous. (Cont'd)

What horsepower? Arizona Producer. v. 15, no. 7. June 15, 1936. p.15.

Who are the world's five greatest inventors? By J.A. Keyes. Popular Mechanics. v. 65, no. 4. April, 1936. p. 500-503, 124A, 126A-127A.

Motors.

Electric motor replaces dobbin. By Hobart Beresford. Electricity on the Farm. v. 9, no. 2. February, 1936. p. 20-21.

Filling the silo. By T.E. Hienton. Electricity on the Farm. v. 8, no. 7. July, 1935. p. 4-5.

Formulas for figuring gas motor horsepower. Implement Record. v. 33, no. 6. June, 1936. p. 13.

Portable motor for a dime. By George W. Kable. Electricity on the Farm. v. 8, no. 6. June, 1935. p. 13, 20. All that is needed are four one-quarter inch bolts, some scraps of wire, and a few sticks. Base and handle which result have proved very satisfactory in rural electric shop at University of Maryland.

Saving money in elevating corn. By E.W. Lehmann. Electricity on the Farm. v. 8, no. 6. June, 1935. p. 8-9. Corn crop can be housed in less time and with reduced labor by employing protable electric motor.

Painting.

Durability of paint on wood. By F.L. Browne. Industrial and Engineering Chemistry. v. 28; no. 4. April, 1936. p. 416-418. When extractive substance of redwood, southern cypress, and ponderosa pine, respectively, are transferred to surfaces of boards of eastern hemlock, wood lacking in characteristic extractive substances of its own, hemlock acquires some of painting characteristics of wood from which the extract is taken. Experiments substantially confirm earlier deduction that extractive substances in certain woods affect durability of paint coatings, sometimes favorably, sometimes unfavorably, although effect of such extractive substances is much less important in paint life than physical structure of the wood.

Paint and Varnish. By Joseph H. Koffolt and James R. Withrow. 1936. 20 p. Ohio. Engineering experiment station. Circular no. 32.

Physical study of two-coat paint system. By D.W. Robertson and A.E. Jacobson. Industrial and Engineering Chemistry. v. 28, no. 4. April, 1936. p. 403-407.

Patents.

Patent principles and practice. By George D. Jones. Agricultural Engineering. v. 17, no. 5. May, 1936. p. 189-191.

Plows and Plowing.

How many plows will a tractor pull? By C.W. Gray. Tractor Farming. v. 21, no. 5 and 6. May-June, 1936. p. 6-7. Table gives approximate draft of plows in level ground

Plumbing.

Practical plumbing. Domestic Engineering. v. 147, no. 5. May, 1936. p. 74-76, 172-178. Water supply systems which are equipped with pneumatic pressure facilities depend upon correct relation between quantity of water and air for completely satisfactory results. Savings can be effected by applying knowledge of the various factors involved in air expansion.

Motor Trucks.

Better trucks for better farming. By E.T. Leavitt. New England Homestead. v. 109, no. 8. April 11, 1936. p. 4-5. Stamina, dependability, low cost operation, are features of the 1936 models.

Poultry Houses and Equipment.

How to raise chicks. By C.E. Carrick. 1936. 20p. Purdue University. Extension Service. Extension bulletin no. 177.

Incubating and brooding with electricity. By T.E. Hienton. Electricity on the Farm. v. 9, no. 2. February, 1936. p. 7-10.

New Jersey laying houses. By E.R. Gross. 1936. 4p. New Jersey Agricultural Experiment Station. Hints to poultrymen. v. 23, no. 4.

Summer shelters for laying hens. By H. L. Richardson. Orono, Maine. 1936. 4p. Maine College of Agriculture. Extension Service. Extention circular no. 116.

20 x 20 multiple unit laying house and bill of material. By Harry Besley. 1926. 14p. New Jersey state college of agriculture. Extension Service. Extension bulletin no. 179.

Pumps and Pumping.

Bringing the water to the house. By G. W. Pring. Electricity on the Farm. v. 8, no. 8. August, 1935. p. 7.

50 tons of water. By I.P. Blauser. Electricity on the Farm. v. 9, no. 4. April, 1936. p. 7-10.

Rainfall and Runoff.

Relation of rainfall to flood runoff. By C.R. Pettis. Military Engineer. v. 28, no. 158. March-April, 1936. p. 94-98. Relation of rainfall to flood run-off will be reduced to simple mathematical basis, so that general principles can be understood by one who is familiar with current literature on subject.

Reclamation.

Federal reclamation. By Carl A. Hatch. Reclamation Era. v. 26, no. 6. June, 1936. p. 133-135.

Refrigerants.

Carbon dioxide in its new field of usefulness. By J.C. Goosmann. Ice and Refrigeration. v. 91, no. 1. July, 1936. p. 58-63. Developments in production of carbon dioxide. New and important steps in CO_2 refrigeration. Historical research and disclosures. Supercharging with gain in enthalpy balanced against greater power. Arrangements to improve power economy. Analysis of multiple effect indicator card.

Old and new refrigerants. By R.T. Brizzolara. Refrigerating Engineering. v. 31, no. 4. April, 1936. p. 228-231, 250. Challenge of ammonia. Author of this paper holds that ammonia has stood the test of time as the standard refrigerant. Reviewing newer refrigerants author points out that their claims to recognition by engineers are not based on experience, but on laboratory data. These data are inadequate in several respects:- 1. Refrigerants in which oil is miscible have not been tested for fire and explosion hazards under conditions of actual use. 2. Effects of breathing small amounts of escaped vapors over period of time have not been reported upon. 3. Corrosion of various metals where moisture, water, air and refrigerant exist coincidentally, as in instance of leakage, is not negligible, and should be thoroughly investigated.

Refrigeration.

Hot weather - cool milk. By H.J. Gallagher. Electricity on the Farm. v. 8, no. 7. July, 1935. p. 6-8, 18. Table 2.- Approximate power requirements for eight-can storage tank outfit when used for cooling and storing different quantities of milk.

New brine refrigeration system for refrigerator cars. By Howard A. Glenn. Ice and Refrigeration. v. 91, no. 1. July, 1936. p. 6-8. Illustrated description of new process for refrigerating railroad refrigerator cars. Applicable to refrigerator cars equipped with tank type ice containers. Continuously wetted cold surface maintained on inside of tanks. Transit icing considerably reduced. Adopting practices to suit local conditions.

Solar refrigeration. By C.F. Greeves-Carpenter. Ice and Cold Storage. v. 39, no. 457. April, 1936. p. 60. By employing the sun's light rays as fuel power, Mohr discovered that he could create temperatures ranging lower than 20° F., using an absorption cycle. As by far greater proportion is needed during summer, unit devised has proper load characteristics and is said to effect economy over ice-box or electrical refrigerator. Neither strong rays from sun nor warm day are necessary to satisfactory operation of unit, as it involves only light, not heat waves. These light rays on cloudy, sultry days penetrate unit and result in its highly efficient operation. Complete unit consists of a solar absorber, a generator, condenser, and receiver. The solar

Refrigeration. (Cont'd)

absorber is a sphere of special crystal-clear glass which permits penetration of ultra violet rays, and it is capable of withstanding two extremes of temperature. In operation sphere is cool on side exposed to sun, and hot on lower side. It is fitted into a special plate glass valve, and its lower edge rests about 8 inches above absorber, which in turn rests slightly above bottom of thoroughly insulated box. Sun's light rays, shining through oil filled sphere, become intensified and create heat in absorber.

There's money in cool milk. By E.R. Meacham. Electricity on the Farm. v. 9, no. 3. March, 1936. p. 11-13, 21.

Research.

Applying fruits of research. By L. F. Livingston. Agricultural Engineering. v. 17, no. 6. June, 1936. p. 247-248.

Applying the fruits of research. By L.F. Livingston. 1936. 14p. Multigraphed. Address delivered at the Second Dearborn Conference on Agriculture, Industry and Science. Dearborn, Mich., May 14, 1936.

Progress of agricultural research in Great Britain. Experiment Station Record. v. 74, no. 6. June, 1936. p. 737-739.

Research procedure. By M.L. Nichols. Agricultural Engineering. v. 17, no. 6. June, 1936. p. 246. There never was a time when research was so badly needed by agriculture as it is today. Probably greater coordinated program ever attempted is now being formulated by farmers of America in attempt to develop sound use of agricultural resources. Any agricultural program that may be developed for future must be based upon facts, many of which can be obtained only through greatly increased research program in agricultural engineering.

Roofs.

Suspended roof construction for hydraulic model shelter. By H.T. Long. Engineering News-Record. v. 116, no. 26. June 25, 1936. p. 908.

Rubber.

Economics of synthetic rubber. By E.R. Bridgewater. Industrial and Engineering Chemistry. v. 28, no. 4. April, 1936. p. 394-402. Purpose of paper is to examine economic position of synthetic rubber industry as compared with natural rubber industry. Both the Soviet butadiene rubber and the American chloroprene rubber will be considered because synthetic rubber industry is being developed in Russia and in America under economic conditions that are diametrically opposite to each other.

Rubber from alcohol. The Planter. v. 17, no. 5. May, 1936. p. 212. Possible national importance of synthetic rubber as emergency source of supply is emphasized in annual report of Research Association of British Rubber Manufacturers. Russia made 25,000 tons of synthetic rubber from alcohol last year, and output of 40,000 tons is expected two years hence.

Rubber. (Cont'd)

Synthetic rubber in Russia. The Planter. v. 17, no. 5. May, 1936. p. 215. Two pricesses are being exploited. In first, starting by way of alcohol, through divinyl to butadiene rubber, plant required is excessively complex - a typical factory uses 500 units of plant and 100 kilometres of pipeline. There are, also, constant risks of explosion, as mixtures of divinyl and air are dangerous in this respect. It was in attempts to avoid these drawbacks that second so-called "Sovpren" process was devised, starting from acetylene. Unfortunately, while process is much more simple and is cheaper, product has strong, disagreeable odor, and readily hardens and resinifies. Search for a practicable process goes on, and experimental plant has recently been erected in Moscow to produce 100 kilograms of third type of synthetic rubber per day. First practical trial of any size on synthetic rubber was made in 1933 when seventeen lorries were fitted with tires, some of synthetic, and some of natural rubber, for 10,000 kilometre trial run. Twenty-seven per cent of synthetic rubber tires had to be renewed, and only 2.5 per cent of natural rubber tires, due solely to manufacturing defects. On other hand of tires which failed due to ordinary wear and tear, only 25 per cent of synthetic rubber ones came in question. Failure in general was due to ply separation; synthetic rubber lacks adhesive power.

Sewage and Sewage Disposal.

Disposal of farm sewage. By G.O. Hill. 1936. 12p. Purdue University. Extension Service. Extension bulletin no. 165.

Silt.

Modern conceptions of the mechanics of fluid turbulence: Discussion. By S. Franz Yasines, Benjamin Miller and Ralph W. Powell. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 808-812.

New sand trap to clean irrigation water. Agricultural Engineering. v. 17, no. 6. June, 1936. p. 240. Sand trap will reduce amount of silt and sand that enters canal. It will be built in the large wooden flume over New River in Mexico.

Sedimentation in quiescent and turbulent basins: Discussion. By Harry H. Hatch, Harry H. Moseley and George J.Schroepfer. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 785-790.

Stable channels in erodible material: Discussion. By R.E. Ballester and Gerald Lacey. Proceedings of American Society of Civil Engineers. v. 62, no. 5. May, 1936. p. 773-779.

Soil Conservation.

New program of soil conservation. By Berry H. Akers. The Farmer. v. 54, no. 6. March 14, 1936. p. 5, 38.

Saving the soil: What it means to farmers and the nation. U.S. Agricultural Adjustment Administration, 1936. 8 p.

Soil Conservation(Cont'd)

Social and economic survey of the Spencer soil-conservation area. By F. D. Cornell, jr. 1936. 36 p. West Virginia Agricultural Experiment Station. Bulletin no. 269.

Soil Testing.

Improved soil testing methods. By Glennon Gilboy. Engineering News-Record. v. 110, no. 21. May 21, 1936. p. 732-734. New instruments for consolidation, shear and permeability tests contributed to soil investigations on Muskingum project.

New soil sampler for deep tests. Engineering News-Record. v. 116, no. 23. June 4, 1936. p.804-805. Requires no casing for deep foundation tests. Retractable plug in end of tube permits dirving to desired depth. Cost and time of sampling greatly decreased.

Temperatures.

Precision method for the measurement of condenser tube surface temperatures for the determination of film coefficients of heat transmission. By Joseph O. Jeffrey. 1936. 34p. Cornell University. Engineering experiment station. Bulletin no. 21.

Terracing.

Farmers build terraces. By Carlyle Hodgkin. Nebraska Farmer. v. 78, no. 12. June 6, 1936. p. 7, 21, 28. 18 men each invest $100. Operating cost averages $30. per mile. Proper equipment emphasized.

Thermostats.

Designing and building thermostats. By C.A. Crowley. Popular Mechanics. v. 65, no. 4. April, 1936. p. 628-633.

Tires.

Effect of tractor tire size on drawbar pull and travel reduction. Letter from A.W. Clyde. Agricultural Engineering. v. 17, no. 6. June, 1936. p. 255-256.

Rubber tires speed up crop work as much as 18 per cent. By F.A. Meckel. Kansas Farmer. v.74, no. 4. February 15, 1936. p. 12D.

Tractors.

Economical length of time to keep a tractor. By D.G. Williams. Agricultural Engineering. v. 17, no. 6. June, 1936. p. 254.

Tractors and tractor fuels. By A.L. Stallings. Hoosier Farmer. v. 21, no. 6. June, 1936. p. 16-17, 28.